Building Safety Leadership at Oak Ridge National Laboratory

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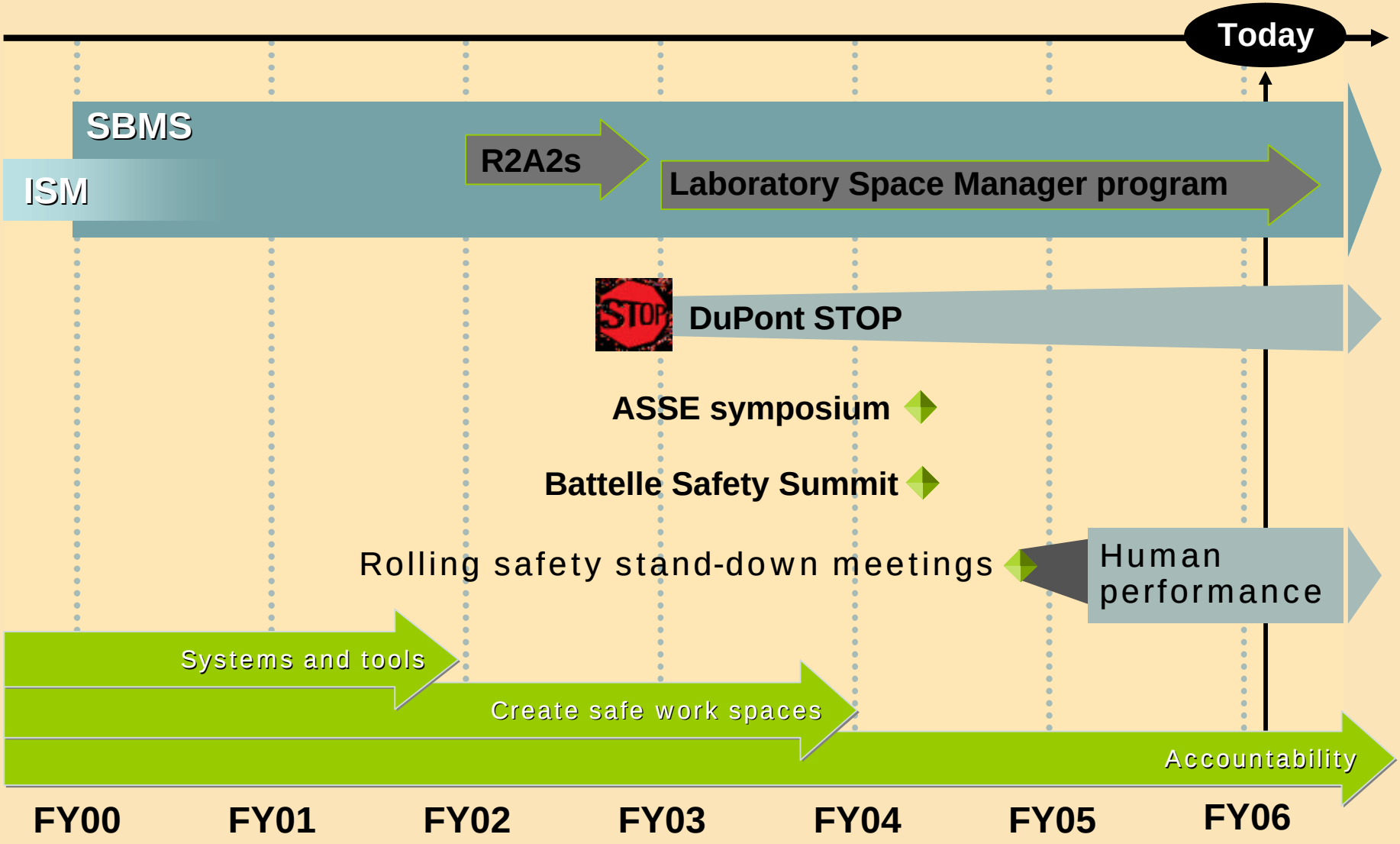
April 2000: ORNL was facing serious safety challenges

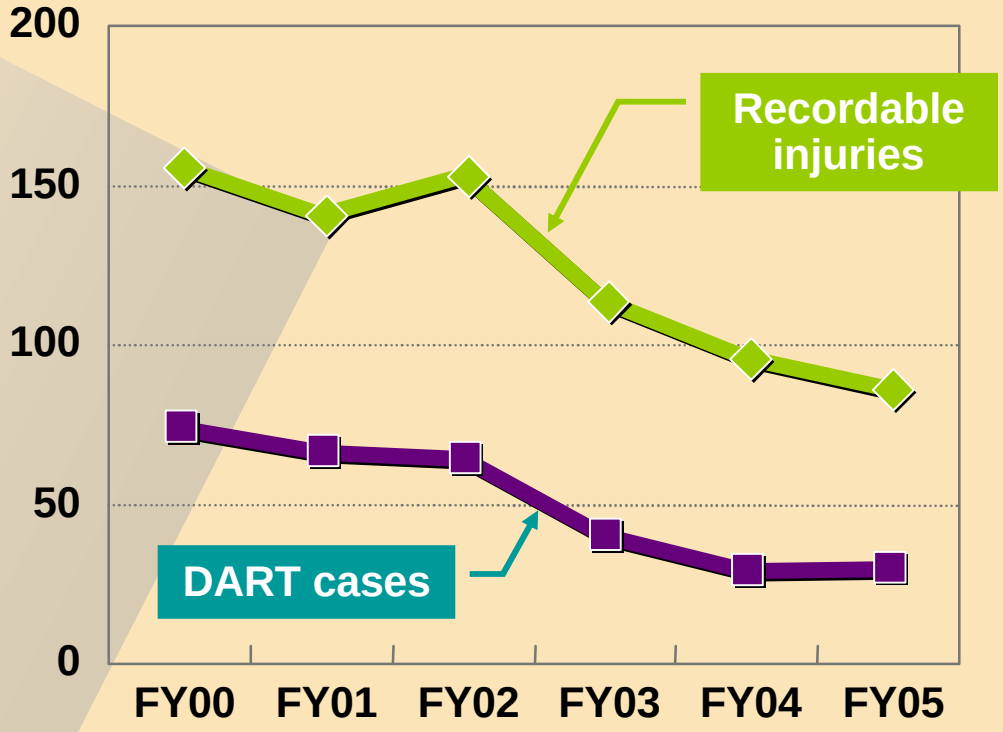
- **Consistently poor safety performance**
- **Extensive environmental legacies**
- **Aging infrastructure**
  - **Degraded equipment performance was known and accepted**
  - **Workarounds were common**



History of ORNL safety initiatives



Our safety performance has improved, but we are still far from our goal



Our goal is to prevent ALL injuries

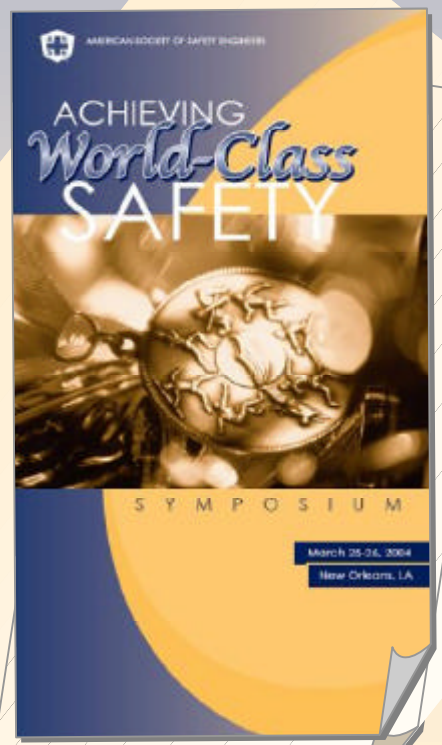
We at ORNL could do better

Evidence from the Spallation Neutron Source project

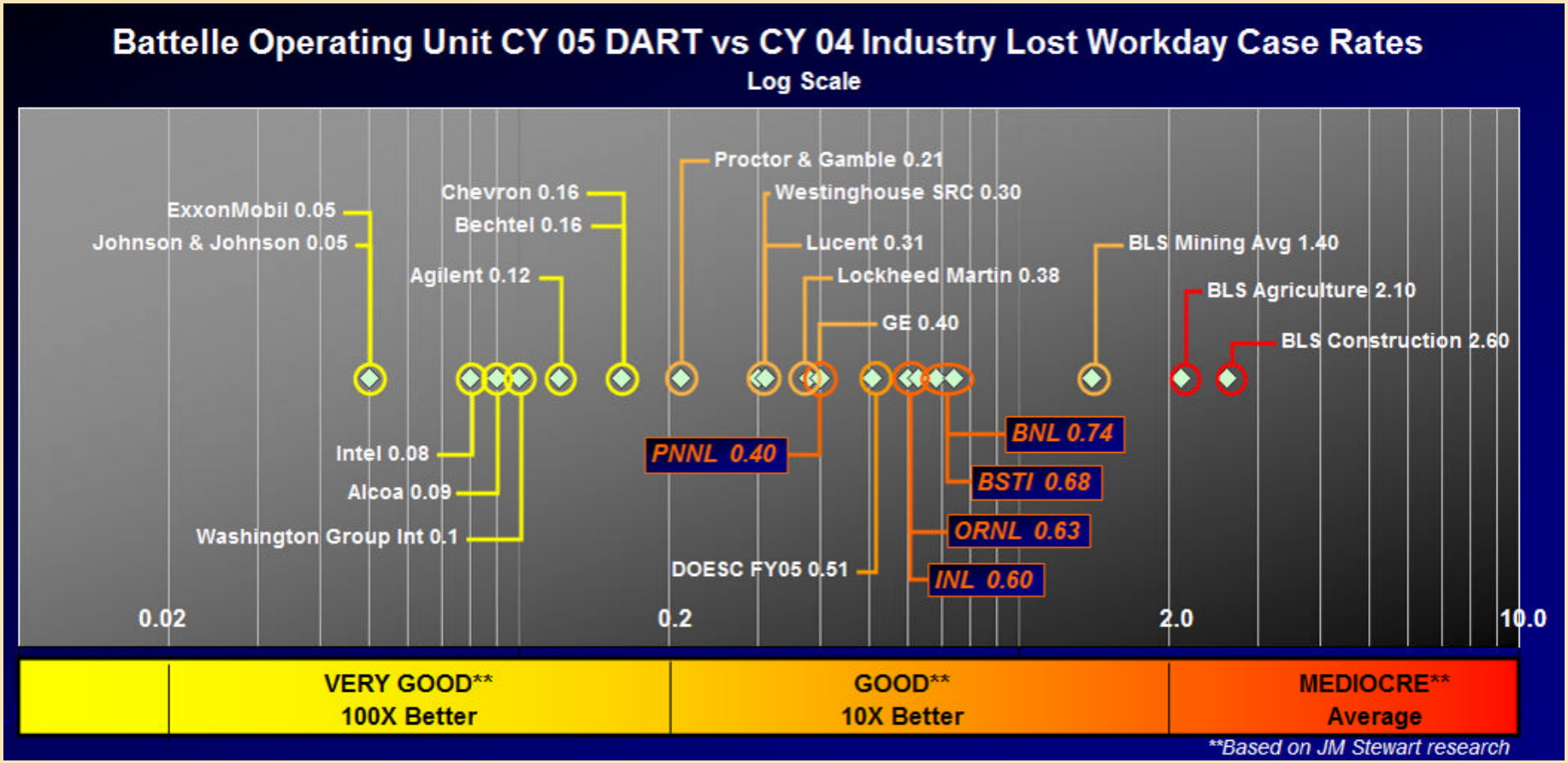
- DOE's largest civilian science project ($1.4B)
  - Up to 600 construction workers on site at peak
  - Both conventional and nonconventional hazards at job site
- May 2004: SNS construction

Results from world-class safety organizations

- March 2004: American Society of Safety Engineers Symposium, New Orleans



We want to rank among the world's best performers



Rates based on cases per 200,000 work hours (100 FTEs)

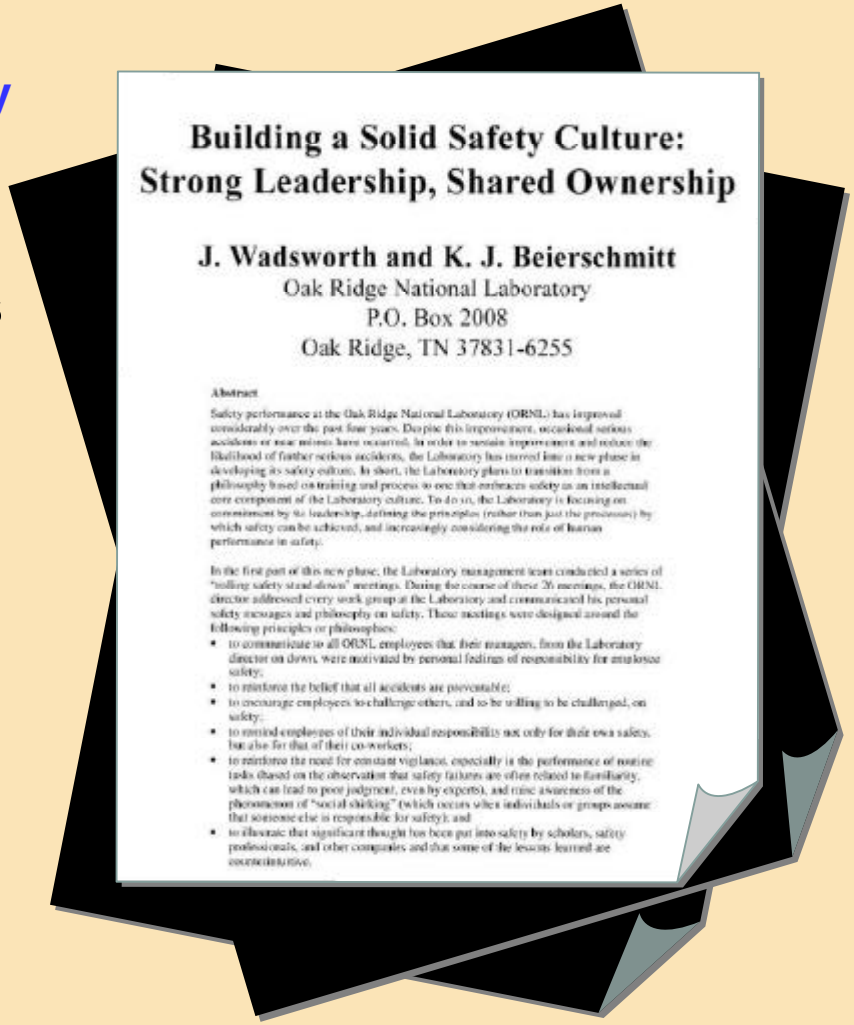
Rolling safety stand-down meetings
July–October 2004
26 meetings, 3900 people

Begin a conversation about safety

- **Share personal experiences**
- **Describe “failure modes”**
- **Review lessons learned from scholars, safety professionals, and other companies**
- **Request feedback**

Key elements of the meetings evolved to include these points

- **Sharing responsibility for safety**
  - **Managers care about employee safety**
  - **Employee engagement** at all levels **is essential**
- **Safety is about people, not statistics**
- **Challenging others and accepting challenges**
- **Avoiding heuristic traps**
  - **Familiarity**
  - **Social proof**
  - **Commitment**
  - **Scarcity**
  - **Redundancy and social shirking**
- **Reinforcing the fundamental belief that all accidents are preventable**



Building a Solid Safety Culture: Strong Leadership, Shared Ownership

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Abstract

Safety performance at the Oak Ridge National Laboratory (ORNL) has improved considerably over the past four years. Despite this improvement, occasional serious accidents or near misses have occurred. In order to sustain improvement and reduce the likelihood of further serious accidents, the Laboratory has moved into a new phase in developing its safety culture. In short, the Laboratory plans to transition from a philosophy based on training and process to one that embraces safety as an intellectual core component of the Laboratory culture. To do so, the Laboratory is focusing on commitment by the leadership, defining the principles (rather than just the processes) by which safety can be achieved, and increasingly considering the role of human performance in safety.

In the first part of this new phase, the Laboratory management team conducted a series of "rolling safety stand-downs" meetings. During the course of these 26 meetings, the ORNL director addressed every work group at the Laboratory and communicated his personal safety messages and philosophy on safety. These meetings were designed around the following principles or philosophies:

- to communicate to all ORNL employees that their managers, from the Laboratory director on down, were motivated by personal feelings of responsibility for employee safety;
- to reinforce the belief that all accidents are preventable;
- to encourage employees to challenge others, and to be willing to be challenged, on safety;
- to remind employees of their individual responsibility not only for their own safety, but also for that of their co-workers;
- to reinforce the need for constant vigilance, especially in the performance of routine tasks based on the observation that safety failures are often related to familiarity, which can lead to poor judgment, even by experts), and raise awareness of the phenomenon of "social shirking" (which occurs when individuals or groups assume that someone else is responsible for safety); and
- to illustrate that significant thought has been put into safety by scholars, safety professionals, and other companies and that some of the lessons learned are counterintuitive.

Safety is about people:
Sharing personal experiences

Challenging others and accepting challenges

High-reliability organizations

Avoiding heuristic traps

Familiarity:

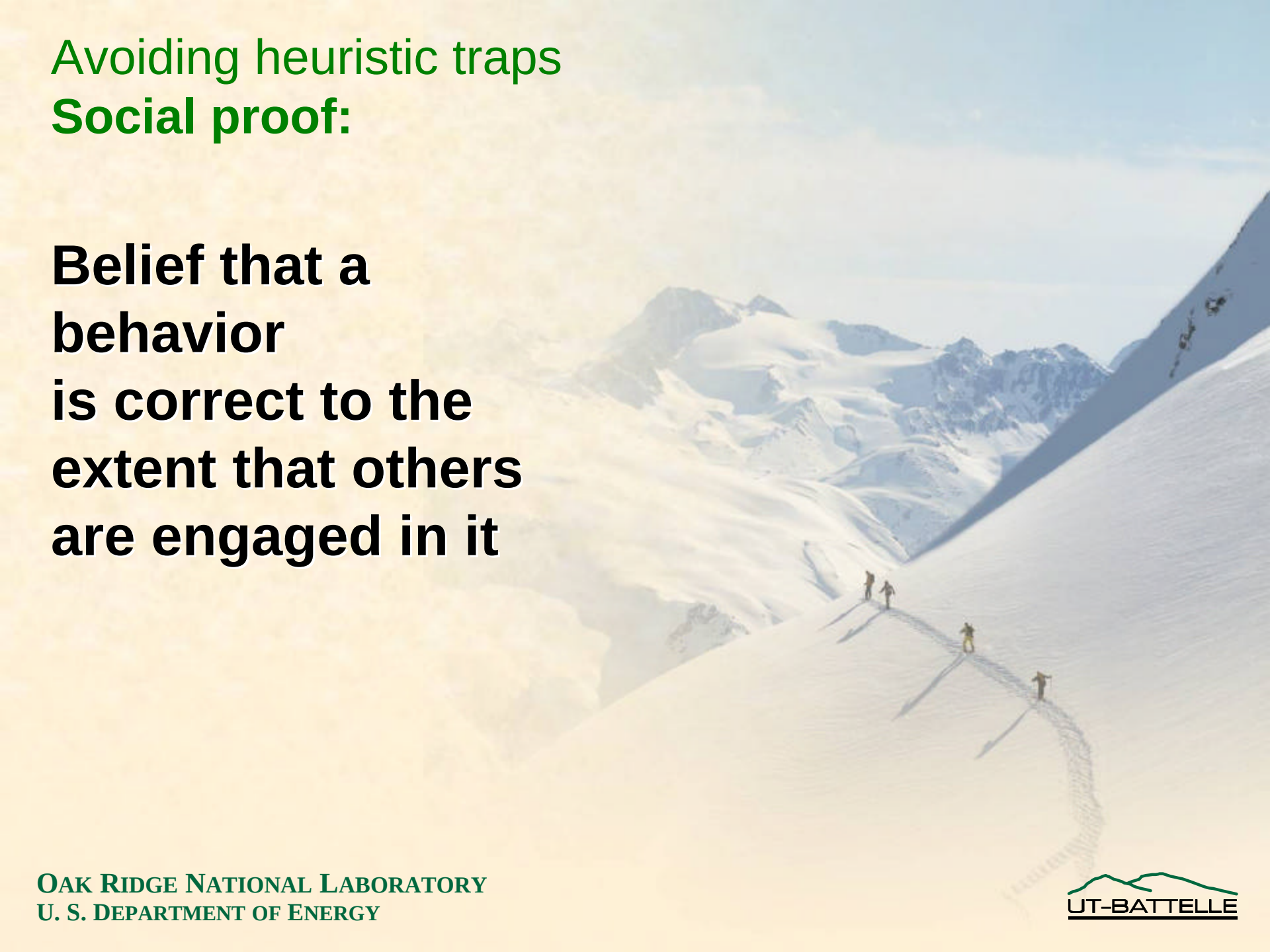
Belief that our behavior is correct to the extent that we have done something before

How many jumps does an Army paratrooper make before he or she is considered less safe than before?

Avoiding heuristic traps

Social proof:

Belief that a behavior is correct to the extent that others are engaged in it



Avoiding heuristic traps

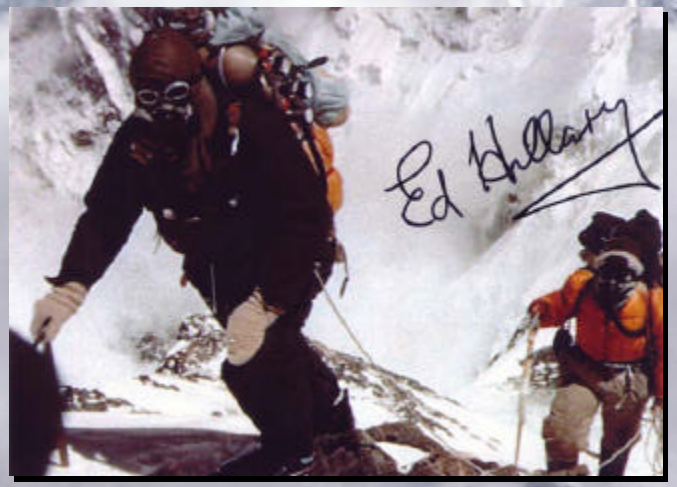
Commitment:

Belief that a behavior is correct to the extent that it is consistent with a prior commitment

Avoiding heuristic traps

Scarcity:

Distorting the value of opportunities that we perceive as limited and competing with others to obtain them



Applying the ISM model

Define work

- **Attain the summit of Mount Everest and stand on top of the world**

Provide feedback

- **Missed one major hazard – severe snow storm**
- **Did not implement the controls – descend mount at 1:30**
- **Two most experienced guides in Everest history and six others dead**

Analyze haza

- **Cold**
- **Falls**
- **Wind**
- **Frostbite**
- **Visibility**
- **Oxygen def**

Perform work

- **Climb Mount Everest**

Develop controls

- **Hire experienced guides (with sherpas for assistance)**
- **Descend at 1:30 – even if 20 feet from summit**
- **Obtain appropriate supplies**
  - **Clothes**
  - **Tents**
  - **Food**
  - **Climbing gear**
  - **Oxygen**

Avoiding heuristic traps

The Problem of Redundancy Problem:

More nuclear security forces may produce less nuclear security

Avoiding heuristic traps Social shirking:

Reducing reliability in the belief that others will take up the slack

Reinforcing the fundamental belief that all accidents are preventable

The response to these meetings was overwhelmingly positive

- **Extensive follow-up communications that informed later meetings**
- **Lively discussions**

Key principles emerged for building a solid safety culture at ORNL

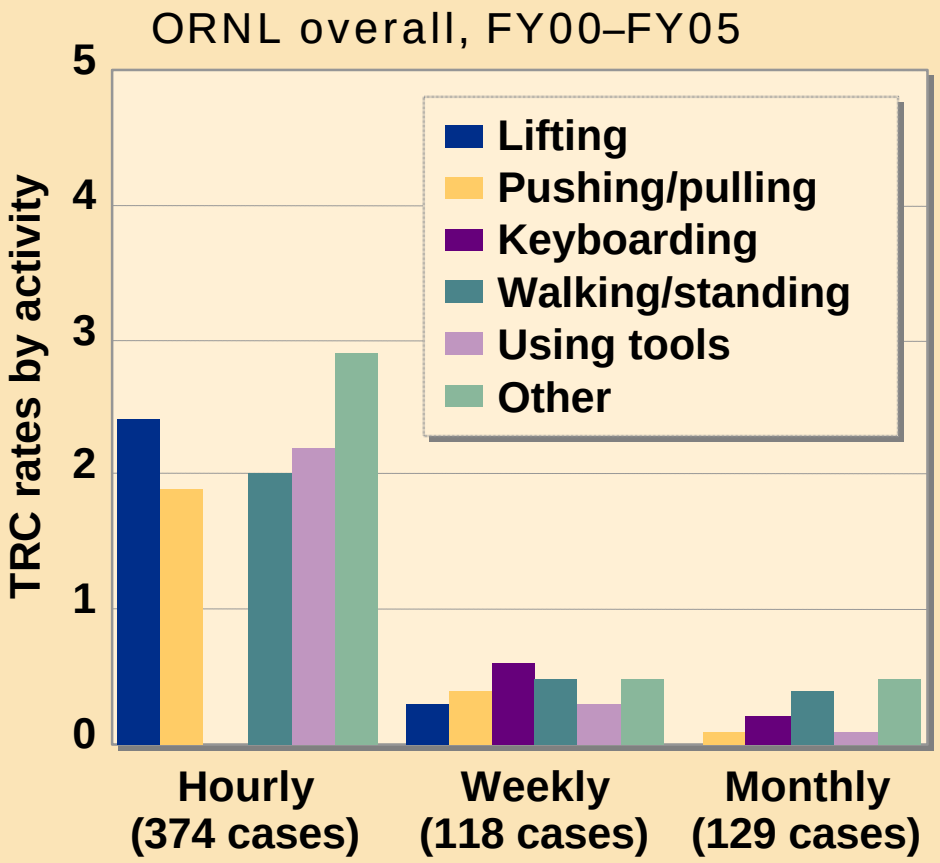
- **Everyone behaves as if all accidents are preventable**
- **Everyone is prepared to challenge unsafe behavior, and to welcome challenges**
- **Each of us is responsible for our own safety and for that of our co-workers**
- **Constant vigilance is maintained, especially on routine tasks**
- **Managers feel personally responsible for the safety of their employees**

We decided on our next steps

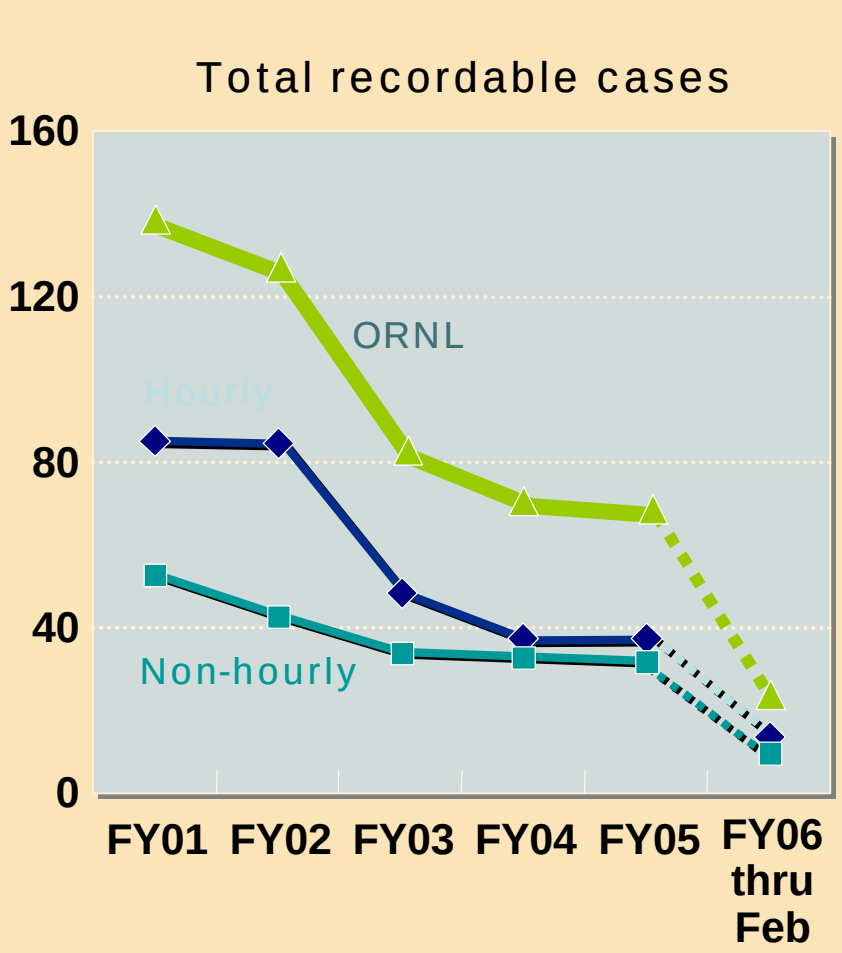
- Continuing the conversation
- Resolving physical conditions that can lead to accidents
- Analyzing injuries:
  - Who gets hurt?
  - What kinds of injuries predominate?
- Expanding our focus on human performance
  - Management accountability for safety
  - Personal accountability for safety
  - Rigorous self-assessment

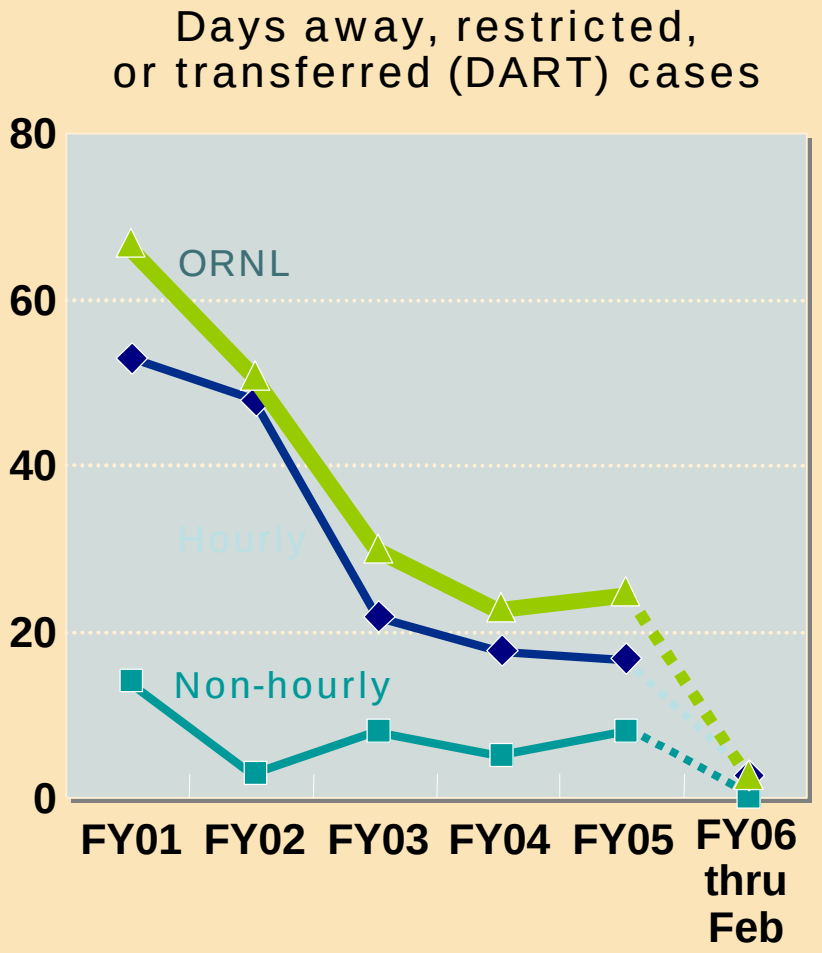
Even though it is about people, not statistics: We can use statistics to help us improve our safety performance

- **Most of our efforts to improve safety have focused on work-related issues with the potential to cause serious injury**
- **A large number of events have no obvious connection to the work**
- **There are strong indications that cultural issues are as important as work-related issues**



Focusing on who gets hurt helps us find solutions





Our safety leadership approach focuses on human performance

- **Maintain our safety record in the areas where it is good**
- **Expand our focus on behavior and cultural issues in high-return areas**
- **Establish clearly defined management accountability for safety**
  - **Visibility in the workplace**
  - **Participation in analysis of incidents**
- **Educate Level 1–Level 3 managers in execution of human performance fundamentals**
- **Require rigorous execution of safety observation by management**

Behavior and cultural issues require continuing vigilance

- **Countering the belief that "accidents happen" by determining how accidents could have been avoided**
- **Instilling in staff a sense of responsibility and accountability for their own safety and that of their co-workers**
  - **90% of our events and accidents are a direct result of unsafe behavior**
- **Promoting safety challenges in a "polite" culture**
- **Encouraging the reporting of safety concerns and ensuring their resolution**
- **Avoiding familiarity and other heuristic traps**

We are taking action

- **Incorporating human performance tools into ORNL work processes**
- **Establishing safety leadership as a core performance expectation for all ORNL managers**
  - **Manager performance evaluations reflect organizational safety performance**
  - **FY06 business plans include safety objectives**
  - **Managers are required to complete safety leadership training that includes management observation**
- **Surveying employee perceptions of ORNL safety culture**
- **Increasing safety awareness through regular, targeted communication**

Safety leadership at ORNL: Long-term outcomes

- **Sustained reduction in number and severity of injuries (and in errors and mistakes that lead to injuries and occurrences)**
- **Issues identified through observations and assessments, not through event self-disclosure**
  - **We are strongly encouraging self-disclosure of safety issues and challenges (could drive up the number of issues reported)**
  - **Eventually, we expect a decline in the number of issues that trigger reporting requirements**
- **Improved indicators from employee safety culture surveys**
- **Improved employee engagement with and ownership of our Safety Leadership Program**

Safety awareness is not enough

To be best in class, managers must take action to create a strong safety culture

- **Develop an explicit understanding of what a strong safety culture requires**
- **Know where we need to improve**
- **Clearly articulate our expectations**
- **Model the behavior we expect**
- **Make safety a highly visible priority**
- **Address safety issues at the highest level needed to ensure full resolution**
- **Demonstrate our commitment through our presence in the workplace**